

REMARKS

Reconsideration of the application is requested.

Claims 10-28 remain in the application. Claims 10-28 are subject to examination.

Under the heading "Claim Rejections – 35 USC § 103" on page 2 of the above-identified Office Action, claims 10-28 have been rejected as being obvious over U.S. Publication No. 2002/0011762 to Klenk et al. in view of U.S. Patent No. 6,563,252 to Schrod and U.S. Patent No. 5,479,902 to Wirbeleit et al. under 35 U.S.C. § 103. Applicants respectfully traverse.

Claim 10 defines a control method for a valve actuator that includes steps of:

charging and/or discharging the actuator in accordance with a control action to move the actuator to a predetermined first open valve position ...;

acquiring an external measured variable in the form of a pressure at the valve; and

during an idle time between two consecutive chargings or dischargings, regulating the control action in dependence on the controlled variable and, additionally, on the external measured variable.

The Examiner has alleged that Wirbeleit et al. teach such steps. In particular, the Examiner has alleged that Wirbeleit et al. teach acquiring a measured variable in the form of a pressure at an injection valve and regulating the control action in dependence on the pressure. Applicants respectfully disagree.

In fact, Wirbeleit et al. specifically teach that the actuator is charged and discharged in a manner that is independent of the injection pressure, and this is exactly the opposite of what is claimed. This can clearly be seen by referring to column 1, lines 63-67 of Wirbeleit et al., which teaches: "As a result of the particular arrangement of the pressure compensation piston with the slot-like injection orifice, the orifice can be opened independently of the fuel pressure solely against the closing force of the spring provided in the injector." The Examiner can also refer to column 1, lines 37-41 of Wirbeleit et al., which teaches that the object of their invention is to select the injection time independently of the level of the fuel injection pressure.

Clearly, Wirbeleit et al. teach that the particular arrangement of the pressure compensation piston 10 enables the orifice control needle 5 to be opened independently from the fuel pressure (column 1, lines 59-67). The provision of the pressure compensation piston 10 achieves the exact opposite of what is defined in claim 10.

Further, contrary to claim 10, Wirbeleit et al. do not teach acquiring an external measured variable in the form of a pressure at the valve. The Examiner has alleged that the pressure in the pressure chamber 13 is measured by the needle position sensor 19. The needle position sensor 19 only detects the position of the pressure compensation piston 10 in order to detect the position of the orifice control needle 5 (column 2, lines 56-59). The position of the orifice control needle 5 does not provide an indication of the pressure in the pressure chamber 13. The figure does show an arrow running from the supply conduit 3 to the control unit 20. However, the purpose of this connection is not disclosed.

Since Wirbeleit et al. do not teach the steps discussed above, even if there were a suggestion to combine the teachings in the references for some reason, the invention as defined by claim 10 would not have been suggested.

With regard to claim 19 the Examiner has alleged that: "To more accurately control the amount of fuel injected using Klenk's actuator, it would have been obvious to regulate the control action (applied voltage) in response to fuel pressure, as taught by Wirbeleit." From the discussion provided above with regard to claim 10, it should be clear that, contrary to the allegation of the Examiner, Wirbeleit et al. do not teach regulating the control action in response to fuel pressure. Therefore, even if there were a suggestion to combine the teachings in the references for some reason, the invention as defined by claim 19 would not have been suggested.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 10 or 19. Claims 10 and 19 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 10 or claim 19.

In view of the foregoing, reconsideration and allowance of claims 10-28 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Sterner LLP, No. 12-1099.

Appl. No. 10/567,627
Reply to Office Action of July 15, 2009
Amdt. Dated September 10, 2009

Respectfully submitted,

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MPW:cgm

September 10, 2009

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